

**Space Launch System (SLS)  
Advanced Booster Engineering Demonstration and/or Risk Reduction (ABEDRR)  
NASA Research Announcement (NRA)  
Questions and Answers (Q&As)**

Note: Some questions have been edited for clarity.

**Question 11:** Figure 2 of Appendix A provides multiple station locations in circles while other dimensions are not circled. Are the circled dimensions reference dimensions or do all the dimensions represent interface constraints?

**Answer 11:** The circled values are station locations referenced to the vehicle X-axis ( $X_{SLS}$ ). The values not shown as X-axis stations are lengths or diameters to help describe the dimensional constraints described in Appendix A, Sections 4.5 and 4.6.

The 810 inch (67.5 ft) value is the maximum width of the vehicle. The 2820 inch (235 ft) value is the maximum length of the booster. The 331 inch diameter is the fixed diameter of the Core Stage. The 227.5 inch booster diameter (per booster) is the maximum diameter that allows the vehicle width to stay within the specified 810 inches which includes a clearance of 12 inches between the Core Stage and each booster.

**Question 12:** In Appendix B, Sheet 1.2 (configuration), cell E30, the value given does not match the formula. Which is correct?

**Answer 12:** The value in Appendix B, Sheet 1.2, cell E30 will be updated to be consistent with the correct formula.

**Question 13:** Per NRA Section 4.2.5.3.2.6 - Electronic copies of the Offeror's price proposal shall be prepared and submitted in Microsoft Office 2007 applications (Word, Excel, and Power Point). The Offeror shall not remove the functionality of the Excel spreadsheets that are submitted in the electronic copy of the Price Volume. All electronic files must be searchable and shall not contain scanned documents. All electronic files associated with the Price Volume shall not contain hidden formulas, tables, and shall not be locked or protected. Any hard values shall be explained and supported. The formats for pictures, drawings, figures, etc., shall be Bit-Mapped Picture (.bmp) or JPEG Picture (.jpg).

Part 1: Does this requirement for searchability apply to the whole Price Volume, or individual pieces? For example, Basis of Estimates (BOEs) and other forms are usually scanned and inserted into the document as pictures and are not searchable.

Part 2: What level of detail does searchability apply to? What exactly needs to be searchable? Do the BOEs have to be searchable? Or does this only apply to certain pieces? Proposed solution: insert NASA forms and our master schedule into the hardcopy Price volume as pictures and then provide working, searchable Excel and MS Project files on the CD.

Part 3: Does the requirement that the picture format be bit mapped or JPEG apply to all volumes? This was only stated in the section pertaining to the Price Volume.

**Part 4:** Is using enhanced meta files in the document acceptable?

**Answer 13:** Parts 1 and 2: The requirement for the Volume 3 – Price to be searchable has been removed. It should be noted that BOEs are not required for the proposal. Please reference Section 4.2.5.3.3, Specific Price Detail.

Parts 3 and 4: All graphics shall be readable by Microsoft Office Word 2007 edition and Microsoft Office Excel 2007 edition. The requirement for Bit-Mapped Picture or JPEG Picture has been removed and Section 4.2.5.3.2.6 has been updated.

**Question 14:** Per NRA Section 4.2.5.3.2.7 – The hard copy shall be in the Offeror’s conventional format. Do the formatting requirements stated in the NRA, i.e. 1-inch margins, Times New Roman 12 point font, etc., apply to the Price Volume, or can the Offeror use its conventional format, particularly font sizes as many of the forms the Offeror normally uses are in an Arial font and some of the forms do not have 1-inch margins.

**Answer 14:** The Offeror shall comply with Section 4.2.5.7 for formatting requirements. Sections 4.2.5.3.2.7 and 4.3.1 will be modified.

**Question 15:** Does the searchability and formatting requirements also apply to the Contracts volume? This volume also involves scanning and placing documents into the Contracts Volume as pictures, i.e. schedules, plans, etc.

**Answer 15:** Searchability is not required for the Model Contract, Volume 4. The Offeror shall comply with Section 4.2.5.7 for formatting requirements.

**Question 16:** Will NASA exclude Forms from the NRA Appendix B, required in Volume 1, from page count? As is, depending upon the printer settings, these Forms can vary by at least a page in format. Additionally, the pages in the electronic version will most likely not align with the hardcopy version because of varied software settings. Proposed solution: 1) reduce the total Volume 1 page count by X pages and have the Appendix B forms as an attachment to Volume 1.

**Answer 16:** The Appendix B forms will remain as part of Volume 1 page count. The Offeror’s printed proposal takes precedence over the electronic submission for page counting purposes. The Offeror shall submit only information that is pertinent to its Advanced Booster concept. NASA reference information as contained in the worksheets is not required to be submitted.

**Question 17:** The aerodynamic data provided in the “NRA Force and Moment Database – HLLV\_2010-10-05.xlsx” is missing the aerodynamic reference area (Aref) and length (Lref) that should be applied to the force and moment coefficients. These values are not found anywhere else in the documentation. Could NASA please provide these?

**Answer 17:** The aerodynamic reference area (Aref) and the reference length (Lref) values will be included and posted in the revised force and moment file located in the technical library folder on Knowledge Now, file name: NRA Force and Moment Database – HLLV\_2010-10-05-

Rev1-ITAR.xlsx.

**Question 18:** Topic: Relative Importance of Affordability, Reliability, and Performance. Reference: 5.1.3.1 Factor 1: Relevance to NASA Objectives and Draft NRA Q&A #16, #26, #102.

The response to Question #102 on the Draft NRA stated: “As stated in Draft NRA Section 5, Factor 1, NASA’s objectives are to enhance affordability, improve reliability, and meet the set of performance requirements. Affordability is more important than reliability or performance. Reliability and performance are considered equal in importance.” However, the language in the Final NRA Evaluation Factors and Criteria in Section 5.1.3.1 does not appear to state any difference in importance between the three stated NASA objectives. Are the Final NRA Evaluation Factors and Criteria stated correctly or will the NRA be amended such that the relative importance between these three NASA objectives is formally stated in the Evaluation Factors and Criteria?

**Answer 18:** Yes, the evaluation factors and criteria as stated in the NRA are correct; therefore, no change will be made. There is no discrete weighting assigned to enhancing affordability, improving reliability, and meeting the set of performance requirements as included in Section 5.1.3.1.

Please note that Section 1.3 of the NRA states “Additionally, the Offeror is advised that this NRA takes precedence over any previously provided briefing, answers to questions, and the Draft NRA.”

**Question 19:** Topic: Volume 1 and Volume 2 Evaluation Factors and Criteria. Reference: 5.1.3.1 Factor 1: Relevance to NASA Objectives and 5.1.3.2 Factor 2: Intrinsic Merit.

Factor 1 states that the Government will specifically evaluate: “EDRR summaries including their value and significance.” Factor 2 states: “The Government will evaluate the detailed description of proposed EDRR effort and how the predicted results obtained from the proposed EDRR will provide significance and value to the Advanced Booster concept.” This appears to state that essentially the same criteria “significance and value of proposed EDRRs” will be evaluated in both Volume 1 and Volume 2.

Part 1: It is our understanding that the “EDRR summaries” will be evaluated in Volume 1 and the EDRR “detailed descriptions” will be evaluated in Volume 2. Is this correct?

Part 2: Can NASA clarify how the “value and significance” is intended to be evaluated in both volumes?

**Answer 19:** Part 1: Yes, the interpretation is correct. The “EDRR summaries” will be evaluated in Volume 1 in accordance with Section 5.1.3.1 and the EDRR “detailed descriptions” will be evaluated in Volume 2 in accordance with Section 5.1.3.2.

Part 2: The details of EDRR value and significance will be evaluated in Volume 2 - Intrinsic

Merit. Please reference Sections 4.2.5.1.2.7 and 4.2.5.2.2.

**Question 20:** Topic: Appendix E-1 and E-2 Element of Price Detail. Reference: Appendix E-1 Element of Price Detail, Appendix E-2 Element of Price Detail – Major Subcontractor, and 4.2.5.3.3, Specific Price Detail.

NRA Section 4.2.5.3.3, Specific Price Detail, states: “Therefore, the Offeror shall provide pricing data in accordance with Appendix E-1 for the total proposed effort and a separate Appendix E-1 for each stand alone EDRR proposed. Major subcontracted pricing data shall be provided in accordance with Appendix E-2 for the total proposed effort and a separate Appendix E-2 for each stand alone EDRR proposed. Additional cost elements may be included if necessary to reflect the Offeror’s cost accounting structure.” However, the Appendix E-1 and E-2 Excel worksheet appears to be locked such that new rows are not allowed. Will NASA provide versions of Appendix E-1 and E-2 with unlocked Excel worksheets so that additional cost elements may be included as necessary by the Offeror and any Major Subcontractor?

**Answer 20:** NASA will not provide an unlocked version of the Excel worksheets. As stated in the instructions for Appendices E-1 and E-2, the Offeror is to provide any additional pricing information or clarification as an attachment.

**Question 21:** Topic: Subcontracts in Appendix E-2 Element of Price Detail – Major Subcontractor. Reference: Appendix E-2 Element of Price Detail – Major Subcontractor, and 4.2.5.3.3, Specific Price Detail.

For the required Appendix E-2 Excel worksheet, there does not appear to be a cell location to capture any subcontracts price information under Item 3 Non-Labor Price. If an Offeror’s Major Subcontractor has subcontracts under their effort, how should this price information be included in the Appendix E-2 worksheet for that Major Subcontractor? We recommend the addition of a “Subcontracts” subcategory under Item 3 Non-Labor Price as an appropriate means of submitting this information in the Appendix E-2 worksheet and/or providing an unlocked Excel worksheet if it is NASA’s intent for the Offeror to add cost elements to E-2.

**Answer 21:** The Offeror may include third tier subcontract information under Appendix E-2 Other Direct Costs (ODCs) category and further explain it as stated in the Appendix E-2 instructions. If the third tier subcontractor is performing effort in excess of \$5,000,000 of the total proposed effort, an Appendix E-2 submission is also required.

**Question 22:** Topic: Appendix B Sheets in Volume 1 Advanced Booster Concept Description. Reference: Final NRA Section 4.2.5.1.2 Advanced Booster Concept Description and Final NRA Q&A responses #6 and #7.

Part 1: We interpret the response to Final NRA Q&A #7 to mean that the Offeror is to include the Appendix B sheets required for their specific Advanced Booster concept within the 35 limited pages of the Advanced Booster Concept Description in Volume 1 for hardcopy proposal submittals. Is that correct? If not, please clarify.

Part 2: We also interpret this to mean that the Offeror is allowed to modify the header/footer material in the Appendix B Sheets as needed to add any proprietary markings, proposal and Offeror identification, consecutive page numbering (as required in NRA Section 4.2.5.7.2), etc. when printing the sheets for inclusion in the hardcopy proposal submittal. Is this correct? If not, please clarify.

**Answer 22:** Part 1: The interpretation is correct. The Appendix B sheets will be counted against the 35 page limit of the Advanced Booster Concept Description in Volume 1 for hardcopy proposal submittals.

Part 2: The interpretation is correct. The Offeror shall mark all proposal information appropriately.